

ENDOLUMINAL STENT HAVING A MATCHED STIFFNESS REGION AND/OR  
A STIFFNESS GRADIENT AND  
METHODS FOR PROVIDING STENT KINK RESISTANCE

ABSTRACT

A modular elongated stent having an overlap region where two modular components fit together, the overlap region being relatively stiff as compared to another more flexible region of the stent when the stent is in an assembled configuration, the stent further comprising a mimic region that has a stiffness essentially equivalent to the stiffness of the overlap region, to provide kink resistance. A stent having such a mimic region or otherwise stiff region and a flexible region may have a transition region between the stiff and flexible regions, such as a bridging material attached to the stent, also to provide kink resistance. A stent may have relatively stiff regions and relatively flexible regions positioned to align the flexible regions with curved regions of a body lumen when deployed within the body lumen. The stiffness of the stiff, flexible, and transition regions may be controlled by attaching material to the stent, varying the cross-sectional area of the stent components, varying the metallurgical properties thereof, and/or by varying the stent architecture. Methods for providing kink resistance by controlling stent stiffness are also disclosed. A stent having regions of different metallurgical properties is also disclosed, as are methods for creating such a stent.